

AMPEX

portable recording system

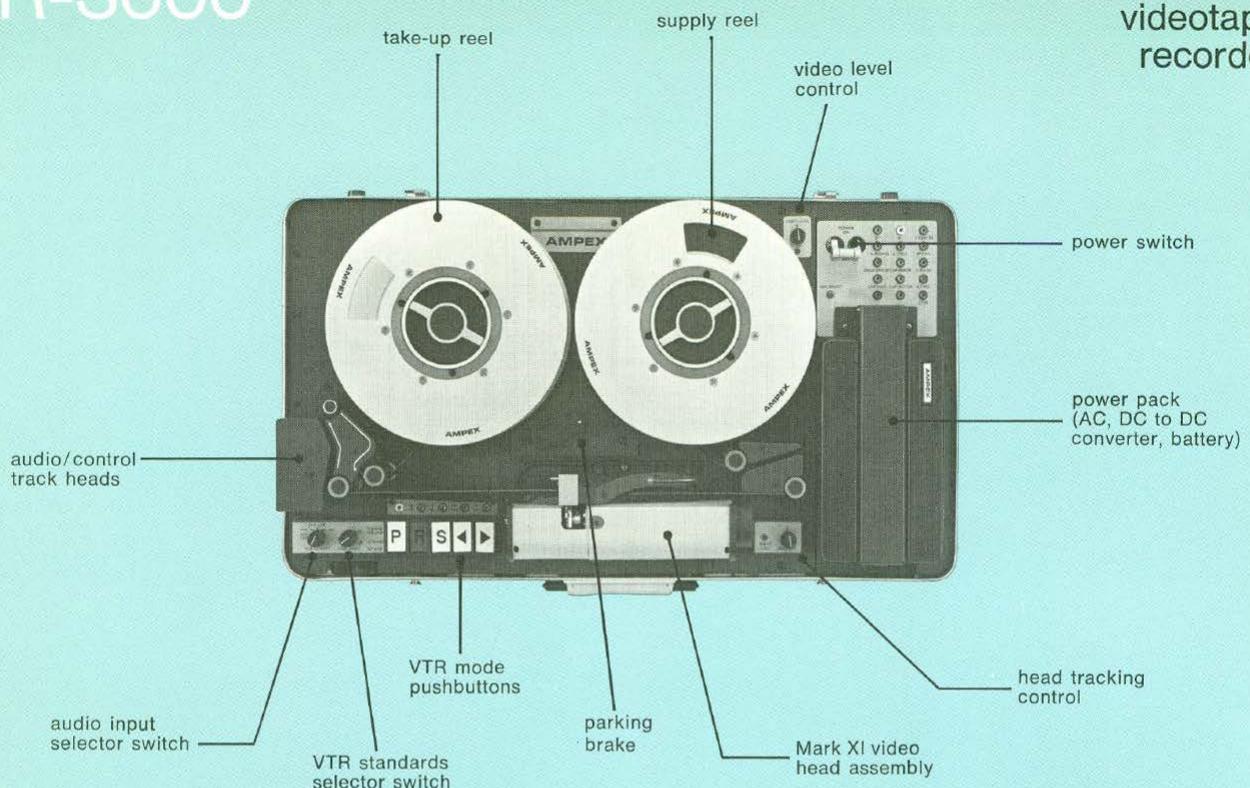
VR-3000 backpack VTR
BC-300 hand-held camera

- Revolutionary design makes video tape as flexible and field-portable as film
- Compact and highly maneuverable . . . backpack VTR weighs only 55 pounds, hand-held camera only 15 pounds with electronic viewfinder
- Tapes are available for immediate "on air" playback . . . are electrically and physically compatible with all transverse scan studio machines
- Records NTSC/PAL/SECAM color and monochrome to SMPTE recommended practice, USA and EBU standards
- Automatic cue - up system . . . records one sequence after another with a maximum of one frame of blank tape . . . minimizes break-up between sequences during unedited playback



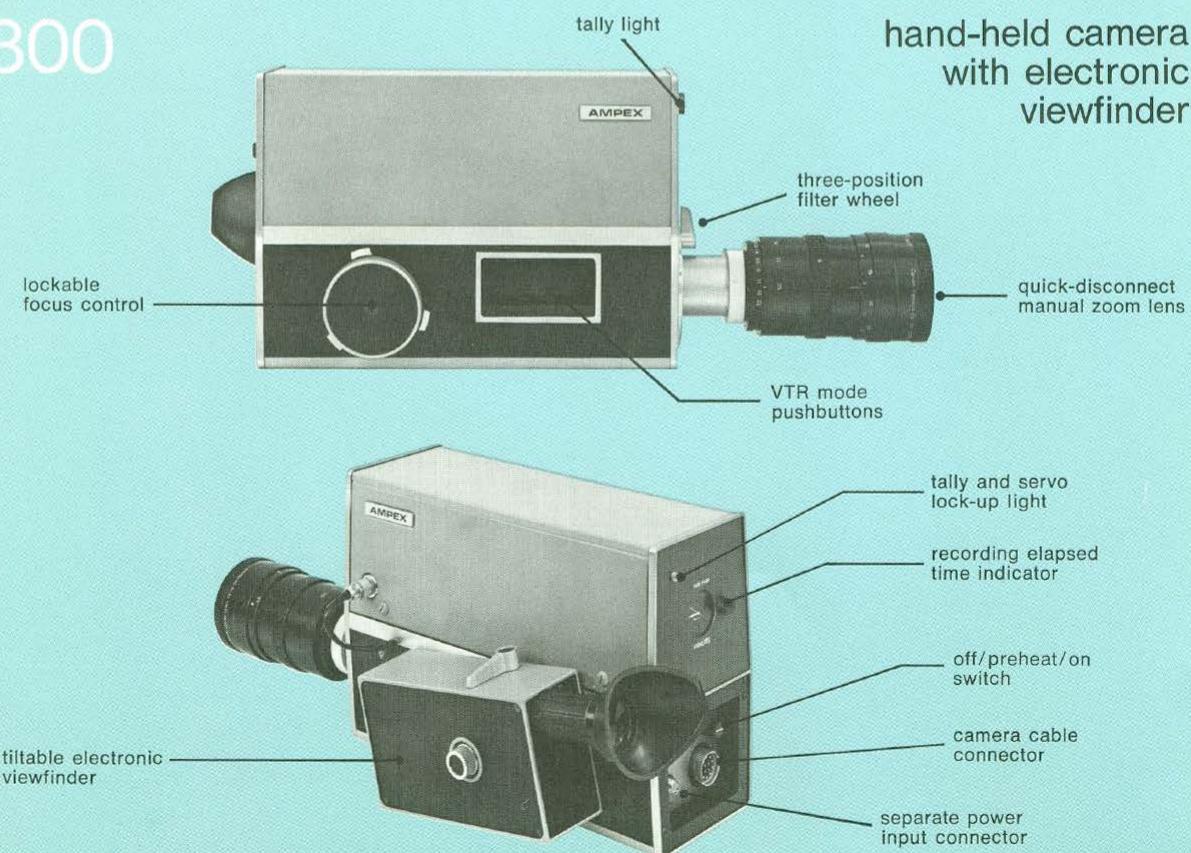
VR-3000

portable videotape recorder



BC-300

hand-held camera with electronic viewfinder



The Ampex VR-3000 Portable Videotape Recorder now gives television producers, stations and networks the freedom and flexibility of film. This lightweight, compact backpack VTR allows studio-quality tapes to be made on-the-spot where conventional equipment cannot go — when news breaks and special events occur. It can be used either as a complete battery powered monochrome system with BC-300 camera, or, as a mobile color recorder with the versatile new Ampex BC-101 color camera.

Description

The Ampex VR-3000 Recorder is a rotary head, transverse scan, battery-operated VTR built to the most demanding specifications ever placed on miniaturized television equipment. This compact unit is instantly switchable between low-band/high-band, monochrome and high-band NTSC/PAL/SECAM color. Tapes produced meet SMPTE recommended practice, USA and EBU standards, at 15 inches/second. The VR-3000 also has provisions for fast forward and rewind, as well as playback monitoring circuitry for set-up (with an alignment tape) and for verifying a recording. Since VR-3000 tapes are instantly playable on studio VTR's, they allow the live picture and sound quality associated with videotape to be maintained throughout a news or special events program.

Rugged field performer

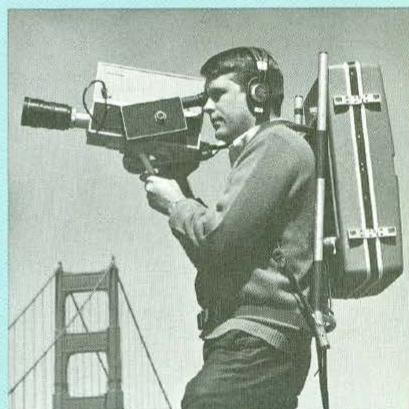
The VR-3000 operates easily and reliably under even the most difficult field conditions. The lightweight (55 pounds), self-powered VTR comes in a convenient, attaché case backpack that permits the cameraman complete freedom of movement at all times. Many normal VTR adjustments and indicators have been eliminated or automated for operational simplicity. For example, con-

stant level "close-up" audio is obtained without riding gain by using a triple time constant AGC. In addition to its many advanced operational features, the total unit can withstand heavy field use. It is designed to work in any normal portable position, has a rigid frame in a lockable case, and has special compliance arms with tape tension servo to minimize vibration effects.

The VR-3000 is really a "one-man" show in the field. The operator can accurately preview his camera shots and record continuously or intermittently. Upon rewinding the videotape, the cameraman can play it back for monitoring purposes on his electronic viewfinder—or on an external monitor using output connections provided. The VTR also includes automatic backup and restart logic. It will rewind a short length of tape (after pressing the stop button) so when it comes out of play or record mode, allowance is made for lock-up time when restarting the VTR. Thus, a new recording always occurs at the end of a previous recording, or about one-half second after pressing the start button, whichever occurs first. Provision is also made for phase continuity of the new control track — in order to minimize the reaction of the playback machine at the junction of two taped sequences.

New lightweight video head

The VR-3000 transport has a new lightweight, compact video head assembly—the Mark XI. This four-part rotary video head includes a brushless DC head motor and precision tape guide assembly. A small vacuum pump and miniature tape guide lifter motor have also been included in the VTR to give the video head the same capabilities as larger, more complex studio-type recorders. Special care has been taken in the Mark XI head to minimize ambient noise.



The Ampex BC-300 hand-held monochrome camera is a revolutionary television achievement in miniaturization and packaging. It is a compact and highly maneuverable unit that can, when combined with the VR-3000 backpack VTR, produce broadcast quality TV pictures that simply are not possible with conventional equipment. It provides picture quality with excellent grey scale rendition, superior to that achieved with larger studio cameras. The camera's high sensitivity produces excellent images with light levels as low as 30 foot candles, and yet with minimum image lag. Its electronic and optical versatility permits a lone cameraman to meet any number of "tight-spot" situations without losing valuable shooting time or picture fidelity.

Description

The Ampex BC-300 Monochrome Camera uses a Plumbicon* pickup tube combined with the most modern integrated electronic circuits. It obtains excellent pictures with no shading, under even the poorest lighting conditions in the field; it is not sensitive to raster burns or image retention (sticking). The BC-300 weighs only 15 pounds with its electronic viewfinder attached. Synchronization is furnished the camera by a built-in, crystal-controlled EIA sync generator. By changing one printed board, the BC-300 can easily be converted to 625 line broadcast standards. The camera is powered from a battery power pack or an AC power pack (battery eliminator), located in the VTR backpack. When on AC, it uses a single, miniature cable that is only $\frac{1}{2}$ " thick and extremely lightweight and flexible. This

cable can be used up to 2,000 feet from a base station.

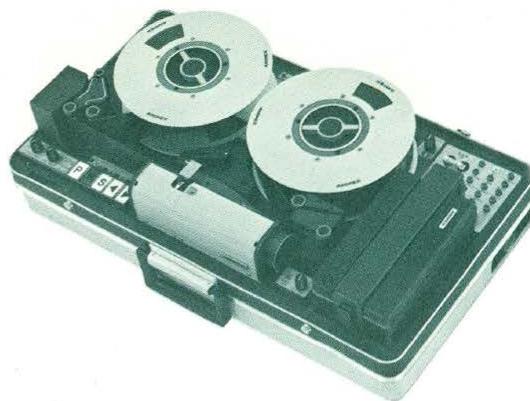
Versatile operating features

The BC-300 camera features a 4:1 zoom lens with a quick-release mount, a 3-step neutral density filter wheel built right into the camera, and a convenient time indicator that gives recording elapsed time in minutes and seconds. Aperture correction on the BC-300 is adjustable to 12dB at 5.5MHz for pictures with extra snap. The BC-300 also features 0.5 gamma correction, on-air cue light at front and rear of camera head, and simplified operating controls placed within easy reach of the lone cameraman.

Electronic viewfinder

A detachable, tiltable electronic viewfinder on the BC-300 camera gives the operator sharp 4×3 images through a built-in magnifier. Such brilliant, clearly viewed images allow the cameraman unprecedented control of composition and video quality during on-location shooting. Since excessive white peaks (displayed in the viewfinder only) are inverted to black, the operator can correct iris settings on-the-spot to always assure proper video level. Another safeguard feature built into the BC-300 viewfinder is a tally light that indicates when the VTR servo is operating properly; this indicator eliminates the possibility of lost takes. When mounted in its clip-on bracket on the left side of the camera, the viewfinder can be tilted to give the cameraman direct viewing — no matter what direction or angle the camera lens is pointing.

VR-3000 recorder specifications



Size: 24" long, 14" wide, 8" high
Weight: 55 pounds (complete including backpack rack)
Power: supplied by silver cadmium battery (operating time per charge is 40 minutes of preview, plus 20 minutes of recording)
Reels: standard 8" precision videotape reel or special lightweight 8" magnesium reel
Tape Speed and Format: 15 ips (on 60 field scanning systems), transverse scan; fully compatible with SMPTE recommended practice and U.S.A. standards
Recording Time: 20 minutes minimum (with 1.4-mil tape)
Signal System: high-band/low-band monochrome (switchable) or high-band NTSC/PAL/SECAM color, 525 line (625 and other line standards by circuit board change)
Fast Forward: 20-minute reel in 5 minutes
Rewind: 5 minutes for a full 20-minute reel
Playback: monitoring purposes only

Audio System:
Control: automatic gain control circuit with fast attack, triple time constant recovery, 60dB control range
Response: $\pm 3\text{dB}$, 50Hz to 10KHz
Signal-to-Noise: 40dB
Input Impedance: 150/250 ohms balanced microphone, or switchable to a balanced bridging line input with or without AGC
Preset Controls: high-band/low-band switch
Performance of VR-3000 Tapes When Played Back on VR-2000, 525/60 HB:
Bandwidth: flat to 4.1 MHz; -3dB at 4.5 MHz; tolerance $\pm 0.5\text{dB}$
Signal-to-Noise: 45dB
Diff. Gain: less than 4% blanking to white 625/50 HB:
Bandwidth: flat to 5.5 MHz; -3 dB at 6.0 MHz; tolerance $\pm 0.5\text{ dB}$
Signal-to-Noise: 43 dB
Diff. Gain: 4%
Diff. Phase: less than 4° at 4.43 MHz off tape.

Diff. Phase: less than 4° at 3.58MHz off tape
VR-3000 Supplied With: transport (including

Mark XI video head) in carrying case; three battery power packs; battery charger; AC power pack (battery eliminator); empty 8" reel; full 8" reel of 1.4-mil tape; alignment tape (525 or 625); accessory case for storing two battery power packs, battery charger, two tape reels

Accessories and Spares Available: DC to DC converter power pack; low temperature battery power pack; heater control for low temperature battery power pack; accessory field case; backpack rack; accessory field case for power pack; adapter tray for mounting a power pack in accessory field case; spare battery power packs, spare Mark XI video head

BC-300 camera specifications

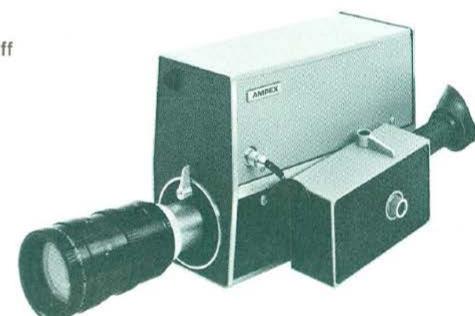
Size: 12" long, 4½" wide, 8½" high
Weight: 15 pounds (with viewfinder)
Power: powered from recorder power pack
Pickup Tube: Plumbicon* tube
Video Output: 1V (composite)
Video Impedance: 75 ohms
Sensitivity: minimum light for usable picture is 30 foot candles
Resolution: 100% response at 4.2MHz at center; 70% response at 4.2MHz in corners
Signal-to-Noise: greater than 38dB with 25 ft. candles incident at f2.8 (without aperture correction, 60% scene reflectance)
Scanning: EIA 525 lines, 60 fields per second (or 625 lines, 50 fields per second by changing one board)
Warm-up Time: operates after 30 seconds from standby mode to "on" mode

Aperture Correction: adjustable to 12dB at 5.5MHz
Time Indicator: indicator on camera shows recording elapsed time in minutes and seconds
Tally Lights: front and rear of camera; record mode and servo lock-up viewed in viewfinder via plastic "light pipe"
Lens: quick-release mount for 4:1 zoom lens or telephoto lens. 6:1 zoom optional
Filters: built-in neutral density filter wheel behind lens (3 optical filters)
Camera Controls: video gain, black level, gamma correction ON/OFF, preheat, system ON/OFF
VTR Controls on Camera: stop, rewind, play, record
Viewfinder Display: 0.8" diagonal picture with apparent size of 4 x 3 through magnifier; 20 ft. lamberts brightness

Viewfinder Controls: contrast and brightness

BC-300 Supplied With: detachable viewfinder, including display tube and magnifier; Plumbicon* tube; 25-100mm f2.6 zoom lens; 5' camera cable; camera field case to hold camera, lens and viewfinder; camera mounting bracket; quick release camera adapter

Accessories and Spares Available: power pack accessories (same as for VTR); optional accessory case; 20' and 100' camera cables; camera tripod; portable lighting package (two types available, battery and AC); 10 to 1 zoom lens with stabilizing rod; cable adapter unit (attaches to camera to provide direct video feed); camera tripod adapter; adapter tray for mounting power pack in field case; battery belt; spare Plumbicon* tube



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